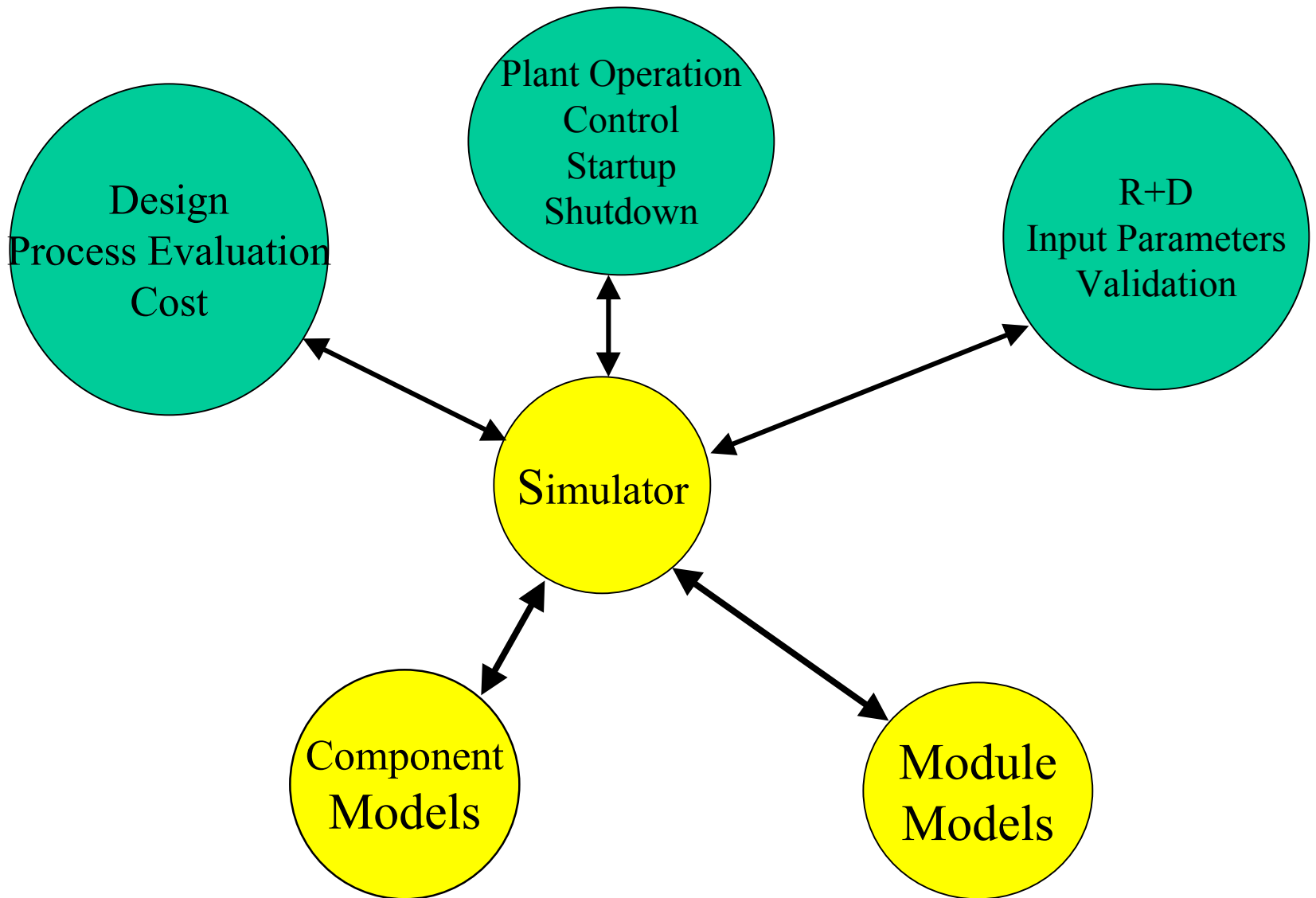


Simulator Development



What Models are Needed?

Hierarchy of Models

- Low End
 - ❖ Spreadsheets
 - ❖ Data set
- Midrange
 - ❖ Aspen
- High
 - ❖ CFD

Model \rightleftharpoons Simulator

- Common Hooks (Object Definitions)
 - Mass balances
 - State variables
 - Thermodynamic properties
- Definition of research needs
 - For kinetic/thermodynamic properties
 - For validation
- Interactive

Simulator Integration

- Incorporate models from many sources, possibly forming a consortium of companies
- Incorporate proprietary models without compromising competitive position
- Must allow for use by individuals with wide range of backgrounds

Users

- A&E Firms
- R&D
- Plant Operators
- Policy Planners
 - Corporate
 - Government
- Instructors: Operator training

User Specification

- Flowsheeting
 - Plant
 - Cycle
- Icons
- Transient capabilities matching plant operation (start up, shutdown, other operational changes)
- 3D visualization
 - Specific units
 - Plant layout, with ability to easily modify
- Recognition of common plant components (one time specification)
- Flexibility
 - Ready transition between model hierarchies
 - Options to specify model from hierarchy of models, with defaults provided

Future Workshops

- Develop a plan with small working group
- Seek inputs from developers of component and module software developers, visualation, users,...